What is claimed is:

1. An in-wheel motor system in which an in-wheel motor, installed in a wheel portion, for driving a wheel is mounted to an unsprung portion of a vehicle by a damping member or a damping unit, wherein

the motor is mounted to the unsprung portion of the vehicle by a damping member comprising a plurality of shock absorbers, each having a spring element and a damper element connected to the spring element in parallel or a damping member comprising either one or more of at least one damper with a spring element, each comprising a spring element and a damper element connected to the spring element in series and at least one composite connection damper whose spring element and damper element connected in parallel are connected to a spring element in series.

2. The in-wheel motor system according to claim 1, wherein the motor is a hollow motor.

3. The in-wheel motor system according to claim 1 or 2, wherein the motor is supported to the unsprung portion of the vehicle in the vertical direction by spring elements and dampers with a spring element, each comprising a spring element and a damper element connected to the spring element in series.

4. The in-wheel motor system according to claim 3, wherein the stator side of the motor is supported to a knuckle by first spring elements in the vertical direction, and the stator side and the unsprung portion of the vehicle are interconnected by dampers with a spring element, each comprising a spring element and a damper element connected to the spring element in series and arranged parallel to the first spring elements.

5. The in-wheel motor system according to claim 3 or 4, wherein the motor is supported by springs and dampers with a spring element in the horizontal direction in addition to the vertical direction.

6. The in-wheel motor system according to claim 1 or 2, wherein the motor is supported to the unsprung portion in the vertical direction by first spring elements, a first damper element and a damper with a spring element, comprising a second spring element and a second damper element connected to the second spring element in series.

7. The in-wheel motor system according to claim 6, wherein the stator side of the motor is supported to the knuckle by the first spring elements and the first damper element arranged parallel to each other in the

vertical direction, and the stator side and the unsprung portion are interconnected by a damper with a spring element, comprising a second spring element and a second damper element connected to the second spring element in series and arranged parallel to the first spring elements and the first damper element.

8. The in-wheel motor system according to claim 6 or 7, wherein the motor is supported by springs, dampers and dampers with a spring element in the horizontal direction in addition to the vertical direction.

9. The in-wheel motor system according to any one of claims 1 to 8, wherein the cylinder body of the damper with a spring element is connected in series between the damper element and the spring element constituting the damper with a spring element.

10. The in-wheel motor system according to any one of claims 1 to 9, wherein the spring element constituting the damper with a spring element is a metal spring, air spring or rubber spring.

11. The in-wheel motor system according to any one of claims 1 to 10, wherein the spring element (second spring element) constituting the damper with a spring element is mounted on both sides in the axial direction

of the piston of the damper with a spring element.

12. The in-wheel motor system according to claim 1 or 2, wherein the motor is supported to the unsprung portion of the vehicle in the vertical direction by a composite connection damper whose spring element and damper element connected in parallel are connected to a spring element in series.

13. The in-wheel motor system according to claim 12, wherein the motor is supported to the unsprung portion of the vehicle in the vertical direction by the composite connection damper and a damper element arranged parallel to the composite connection damper.

14. The in-wheel motor system according to claim 12, wherein the composite connection damper is used as a first composite connection damper, a composite connection damper whose spring element and damper element connected in parallel are connected to a damper element in series is used as a second composite connection damper, and the motor is supported to the unsprung portion of the vehicle in the vertical direction by the first composite connection damper and the second composite connection damper.

15. The in-wheel motor system according to claim 14,

wherein the cylinder body of the damper element arranged parallel to the spring element is interposed between a damper element connected to the damper element and spring element of the second composite connection damper in series and the spring element.

16. The in-wheel motor system according to any one of claims 12 to 15, wherein the cylinder body of the damper element is situated at the other end of the spring element arranged parallel to the damper element of the composite connection damper.

17. The in-wheel motor system according to any one of claims 12 to 16, wherein the spring element constituting the composite connection damper is a metal spring, air spring or rubber spring.

18. The in-wheel motor system according to any one of claims 12 to 17, wherein the motor is supported by a damper and the composite connection damper, or a plurality of the composite connection dampers in the horizontal direction in addition to the vertical direction.

19. The in-wheel motor system according to claim 1 or 2, wherein the plurality of shock absorbers include at least two shock absorbers which differ from each other

in one or both of direction and damping factor.

20. The in-wheel motor system according to claim 19, wherein the movable end of at least one of the shock absorbers is connected to the motor side and the fixed end thereof is connected to the unsprung side of the vehicle, the movable end of at least one of the other shock absorbers is connected to the unsprung side of the vehicle and the fixed end thereof is connected to the motor side.

21. The in-wheel motor system according to claim 20, wherein the shock absorber is composed of a hydraulic unit having a spring, piston and hydraulic cylinder.

22. The in-wheel motor system according to claim 21, wherein the piston upper chamber and piston lower chamber of the hydraulic cylinder of a shock absorber whose movable end is connected to the motor side are connected to the piston upper chamber and piston lower chamber of the hydraulic cylinder of a shock absorber whose movable end is connected to the unsprung side by working oil flow passages having an independent valve, respectively.

23. An in-wheel motor system comprising an in-wheel motor for driving a wheel, which is installed in a wheel

portion and mounted to an unsprung portion of a vehicle by a damping member or damping unit, wherein a motor rotor and a wheel are interconnected by a plurality of cross guides which are arranged in the circumferential direction of the rotor at equal intervals and whose moving directions cross each other on the front and rear sides.

24. The in-wheel motor system according to claim 23, wherein the cross guides are arranged such that the moving directions of all the motor side guide rails of the cross guides become 45° from the radial direction of the motor rotor and the moving directions of all the wheel side guide rails become perpendicular to the moving directions of the motor side guide rails.

25. The in-wheel motor system according to any one of claims 2 to 24, wherein one or more elastic annular dust boots are installed between the motor and the wheel to block a space formed between the motor and the wheel from the outside.

26. The in-wheel motor system according to claim 25, wherein the rotating side case of the motor and the wheel are interconnected by a flexible coupling, and the annular dust boot is mounted between the end portion on a side opposite to the flexible coupling mounting

side of the rotating side case of the motor and the end opposite to the above end of the wheel.

27. The in-wheel motor system according to claim 24 or 26, wherein an annular dust boot is provided to block the coupling portion of the flexible coupling from the outside.

28. The in-wheel motor system according to any one of claims 24 to 26, wherein the annular dust boot has a wavy sectional form in a direction perpendicular to the axis.

29. The in-wheel motor system according to any one of claims 25 to 28, wherein a plurality of holes are formed in the vicinity of the wheel side mounting portion of the annular dust boot.

30. The in-wheel motor system according to any one of claims 2 to 24, wherein a hollow disk-like partition which can move in the axial direction of the motor is provided on the exterior side of a motor bearing for connecting the rotating side case and the non-rotating side case of the motor.

31. The in-wheel motor system according to claim 30, wherein a hollow portion is formed in bearing fixing

covers mounted to the exterior side of the motor bearing and the hollow disk-like partition is stored in the hollow portion.

32. The in-wheel motor system according to claim 31, wherein the space in the radial direction between the hollow disk-like partition and the bearing fixing cover on the rotation side is made larger than the space in the radial direction between the hollow disk-like partition and the bearing fixing cover on the non-rotation side.